SONY

3-755-038-21(2)

FM Stereo/FM-AM Receiver

Operating Instructions

STR-GX49ES

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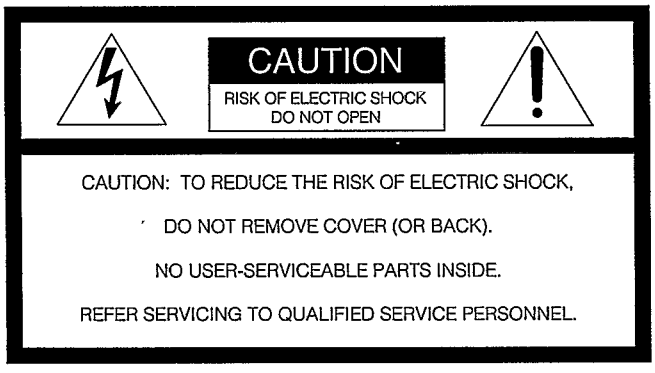
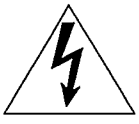
Warning

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol in intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to CATV system installer
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Owner's Record
The model number is located on the rear exterior and serial number is on the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. STR-GX49ES Serial No._____

INFORMATION
This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna
Relocate the equipment with respect to the receiver
Move the equipment away from the receiver
Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

For the customers in Canada

CAUTION :
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

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Features

The STR-GX49ES is a receiver which controls audio/video sources. The unit allows you to switch easily among a variety of audio/video programs.

Amplifier

- Optical Legato Linear A System allows the receiver to operate automatically as a class A amplifier when the level is low and as a class B amplifier when the level is high without disturbing the sound signal. This minimizes total harmonic distortion at every sound stage.
- These receivers have a spontaneous twin drive power circuit. Condensers having large capacity are used independently for the voltage amplification drive stage of class A and power output stage of class B. Thus, a stable output and high quality sound are obtained, resulting in exclusion of power interferences.
  The class A stage realizes a stable operation free from interference of the power stage even when an instantaneous or strong output is received.
- A source direct switch is employed to reproduce high fidelity sound.
  Any source can be reproduced without passing through the circuits of tone control, loudness switch and balance control.

Tuner

- Precise tuning is obtained thanks to the quartz-locked digital synthesizer system.
- A total of 30 FM/AM stations can be preset in 3 memory pages (A, B and C) that allow you to classify stations.

Remote commander

- The remote commander allows you to control most of Sony's audio equipment from a distance.

Precautions

On safety

- Operate the unit only on 120 V AC, 60 Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.
- One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.

On operation

- Before making program source connections, be sure to turn the power switch off and unplug the unit.
- When the unit is not used, turn the power off, to conserve energy and to extend the useful life of your unit.

On cleaning the cabinet

Clean the cabinet, panel and controls with a soft cloth lightly moistened with mild detergent solution. Do not use any type of abrasive pad, scouring powder, or solvent such as alcohol or benzine.

For the customers in the U.S.A.

For detailed safety precautions, see the "IMPORTANT SAFEGUARDS" leaflet.

If you have any question or problem concerning your unit, please consult your nearest Sony dealer.

Installing

Notes on Installation

To prevent internal heat buildup in the unit,
place the unit in a location with adequate air circulation.

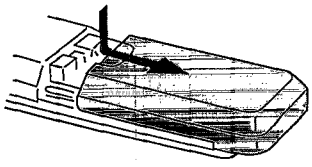
Do not install the unit:
— near heat sources such as radiators or air ducts.
— in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

Do not place anything on top of the cabinet.
The top ventilation holes must be unobstructed for the proper operation of the unit and to prolong the life of its components.

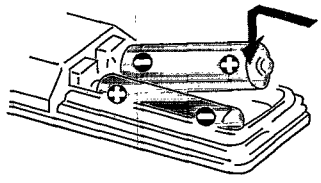
Installing Batteries

Before operating remote commander, install the batteries as shown.

1 Open the cover.



2 Insert two size AA (R6) batteries with correct polarity.



Do not throw away the carton and packing material!
It will be an ideal container when transporting the system for repair work, etc.

To avoid damage caused by battery leakage and corrosion
When the commander will not be used for a long time, remove the batteries.
Normal operation can be expected about a half year using Sony SUM-3 (NS), and a year using Sony AM-3 (NW) alkaline batteries.
When the batteries are run down, the remote commander will not operate the unit. In this case, replace batteries with new ones.

Changing the AM tuning interval

The AM tuning interval is preset to 10 kHz. To use the receiver where the frequency allocation system is based on a 9 kHz interval, make the following adjustments.

1 Turn on the power and tune in any AM station.
2 Turn off the power.
3 Press POWER while pressing the "+" TUNING button.

To reset the AM tuning interval, repeat the above steps.

Caution
When the interval is changed, all preset stations which you have memorized will be erased. After changing the interval, be sure to preset the stations again.

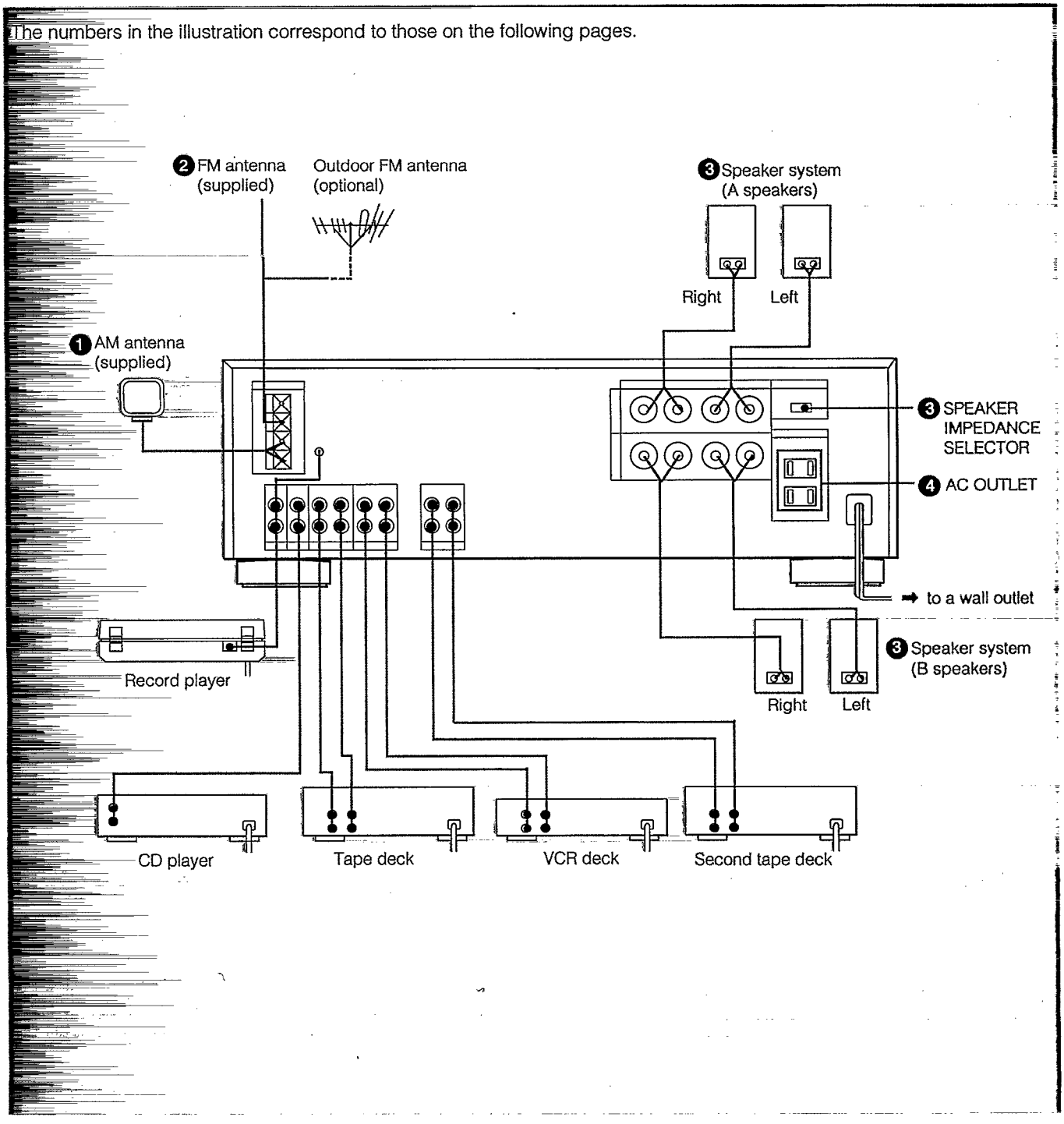
Connecting the System

Notes on Connection

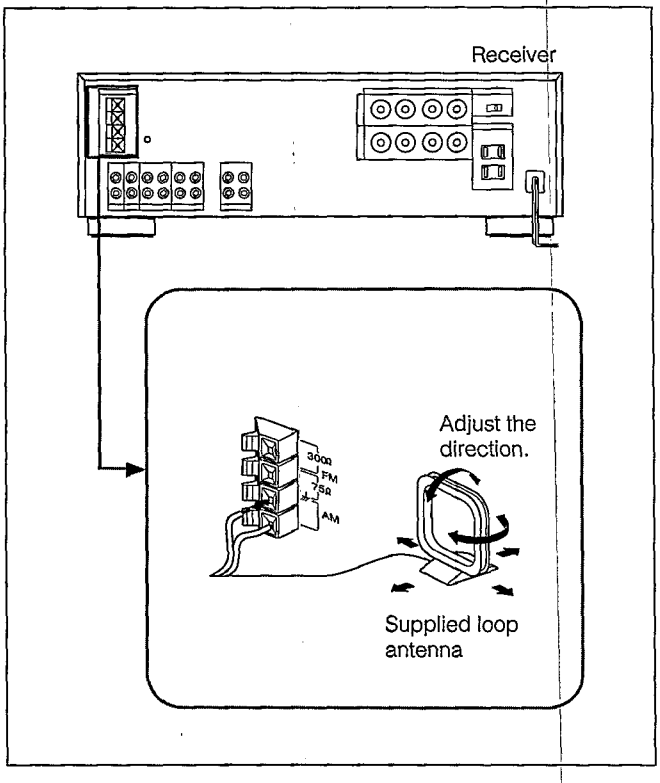
- The power cord should be connected last of all, after making sure that the POWER switch is turned off.
- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- Cord plugs and jacks are color coded. The red plugs and jacks are to be connected to the right channel(R) and white ones to the left-channel(L).

Connection Diagram

The numbers in the illustration correspond to those on the following pages.

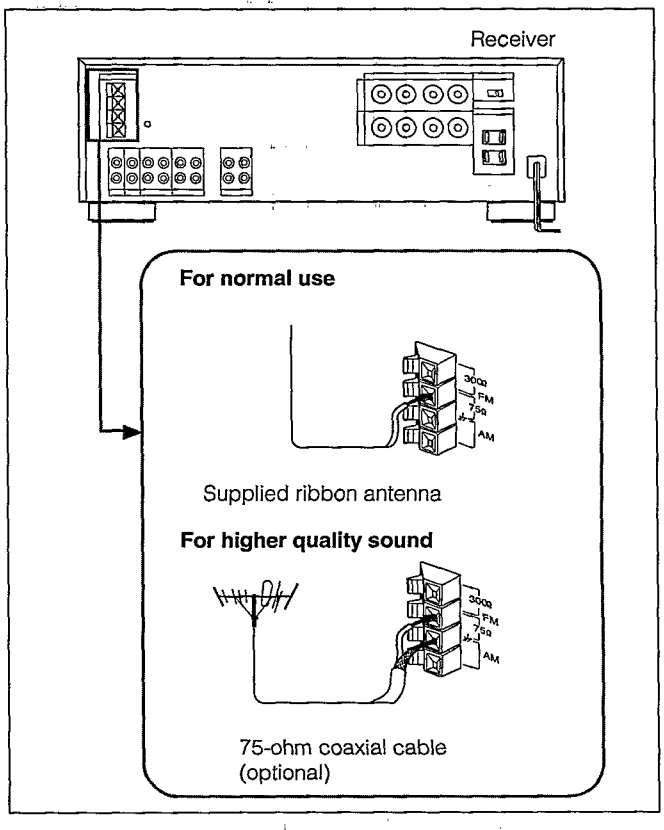


❶ Connecting the AM Antenna



For areas with difficult AM reception
In areas with troubled reception, connect a 6 to 15-meter (20 to 50-foot) insulated wire to the AM antenna terminal. Extend this out of doors if possible, keeping the greater portion horizontal.
(There is no need to disconnect the supplied antenna.)

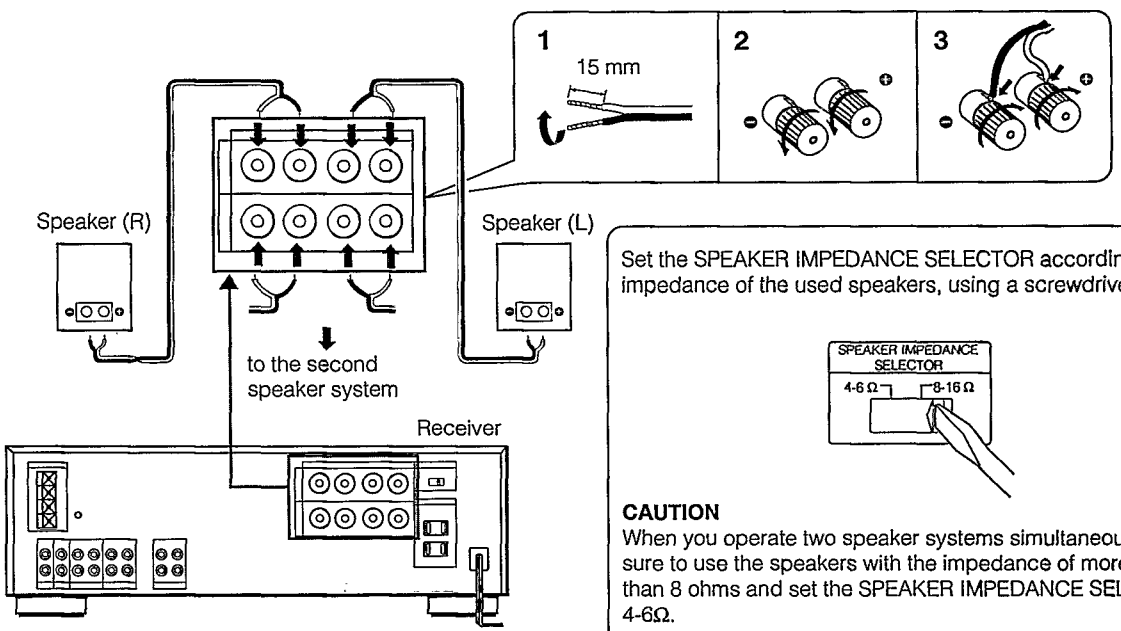
❷ Connecting the FM Antenna



Connecting the Antenna Ground

To prevent hum, connect the ground wire to ANTENNA ground terminal (⏚).
When an outdoor antenna is installed, be sure to connect the ground wire for lightning protection.

❸ Connecting Speaker Systems



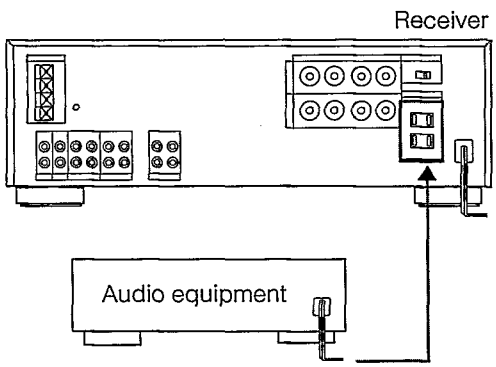
Set the SPEAKER IMPEDANCE SELECTOR according to the impedance of the used speakers, using a screwdriver.

CAUTION
When you operate two speaker systems simultaneously, be sure to use the speakers with the impedance of more than 8 ohms and set the SPEAKER IMPEDANCE SELECTOR to 4-6Ω.

Note
Once the speakers have been connected, move SPEAKERS selector (on the front panel) to A, B or A + B setting.
When using the headphones, set the SPEAKERS selector to OFF.

Speaker impedance and power capability
This receiver is designed to work best with speakers having nominal impedance from 4 to 16 ohms at rated 50 watts RMS per channel with an 8 ohms load from 20 — 20,000 Hz.

❹ Using AC outlets

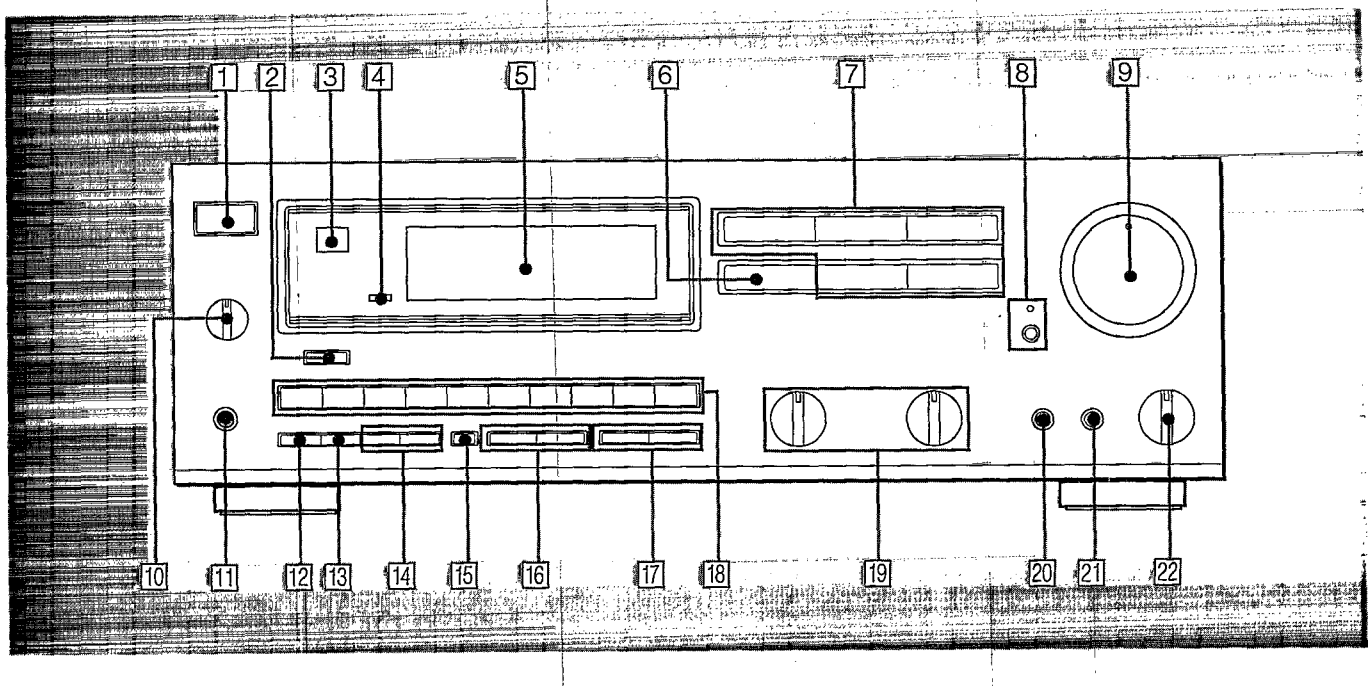


Connect the AC power cord of each piece of equipment to the AC outlet on the receiver so that you can turn the equipment on and off using the receiver's POWER switch.

Caution
Be careful that the total power consumption of each piece of equipment connected to the outlets on the receiver does not exceed 100 watts (for USA), 120 watts/1A max (for Canada). Do not connect electrical home appliances such as an electric iron, fan, TV, or other high-wattage equipment to these outlets.

Parts Identification

Front Panel



1 POWER switch

2 SHIFT button (Pages 13 and 14)

3 Remote control sensor

4 TAPE MONITOR indicator

5 Display window

6 TAPE MONITOR switch (Page 15)

7 Function selectors

8 MUTING button and indicator (Page 11)

9 ATTENUATOR and indicator (Page 11)

10 SPEAKERS selector (Page 8)

11 HEADPHONES jack

12 FM MODE button (Page 12)

13 FM TUNE MODE switch (Pages 12 and 13)

14 FM/AM BAND selectors (Pages 12 and 13)

15 MEMORY button (Page 13)

16 TUNING –/+ buttons (Pages 12 and 13)

17 PRESET TUNING –/+ buttons (Page 14)

18 Numeric buttons (Pages 13 and 14)

19 TONE controls (Page 11)

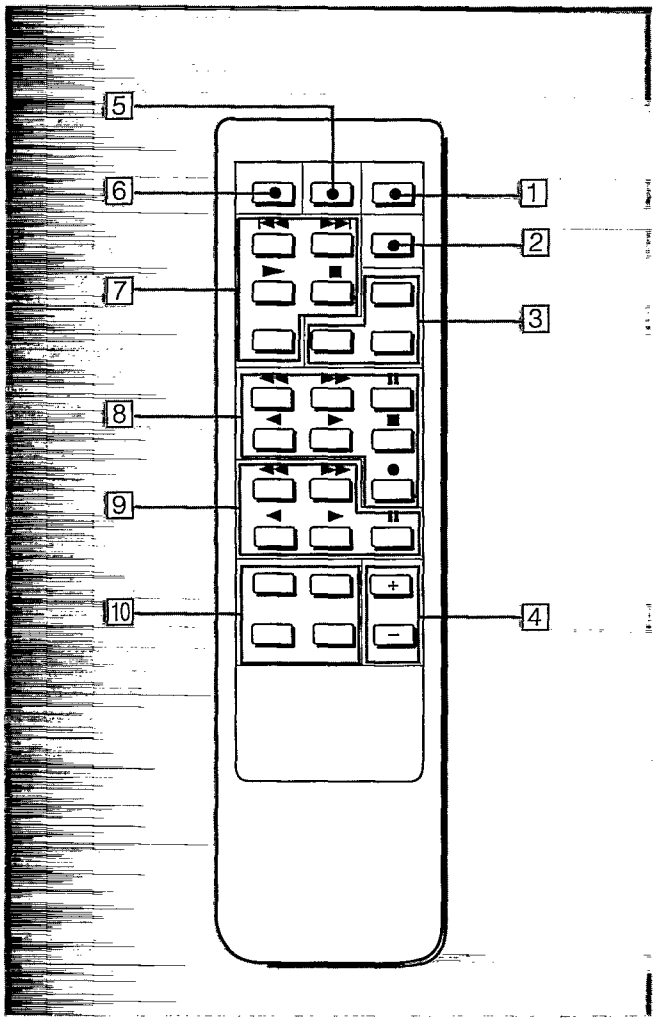
20 SOURCE DIRECT button (Page 11)

21 LOUDNESS switch (Page 11)

22 BALANCE control (Page 11)

Parts Identification

Remote Commander RM-S103



1 POWER button

2 DBFB button
This button does not operate with this receiver.

3 TUNER PRESET +/– and SHIFT buttons
(Pages 13 and 14)

4 VOLUME +/– buttons

5 SURROUND button
This button does not operate with this receiver.

6 MUTING button (Page 11)

7 CD player operation buttons*
D. (disc) SKIP: When your CD player is equipped with a multi-disc changer, use this button to select loaded disc.
CD ►: Selects the CD function and starts CD playback.

8 DECK B operation buttons* (also for single tape deck)
DECK B ◄/►: Select tape function and start tape playback on deck B.

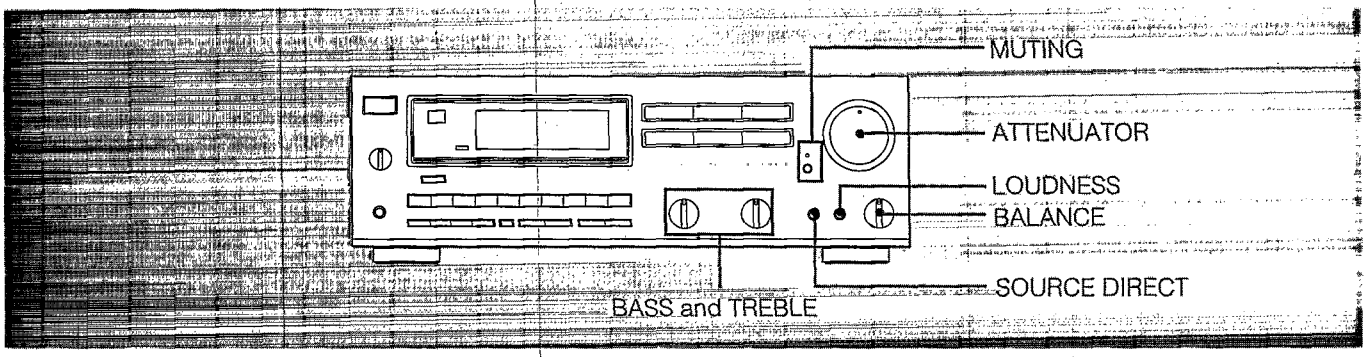
9 DECK A operation buttons*
DECK A ◄/►: Select tape function and start tape playback on deck A.

10 Function select buttons

* These buttons control Sony audio components.

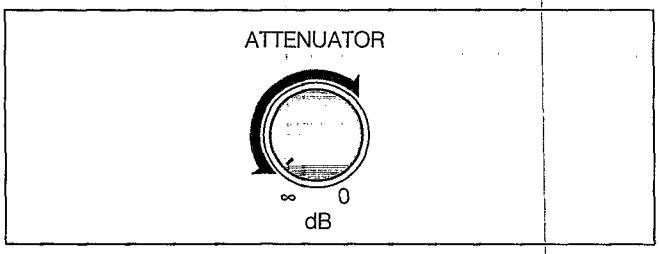
Audio Adjustment

For getting the optimum sound, you can adjust volume and sound quality using the functions below.

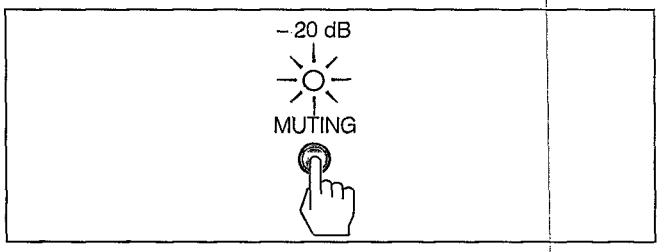


Volume Adjustment

To adjust volume
Turn ATTENUATOR.

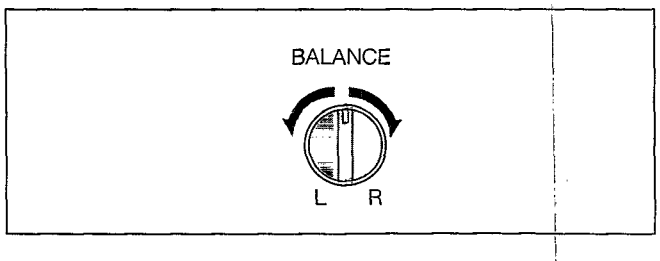


To reduce the sound to a low level temporarily (-20 dB attenuation)
Press MUTING.
Press again to restore the same listening level as before.



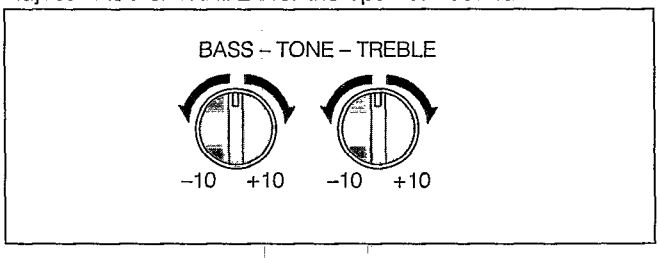
Balance Adjustment

To change the relative strength of the right and left speaker output
Adjust BALANCE to correct stereo imaging, when the speaker position is not symmetrical.

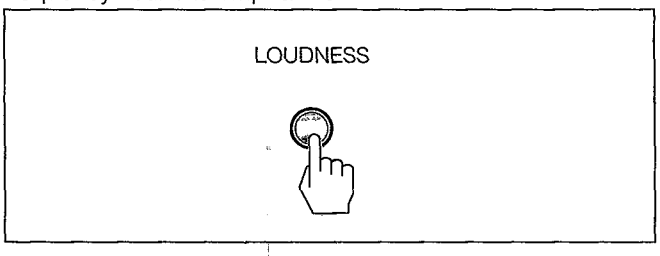


Sound Quality Adjustment

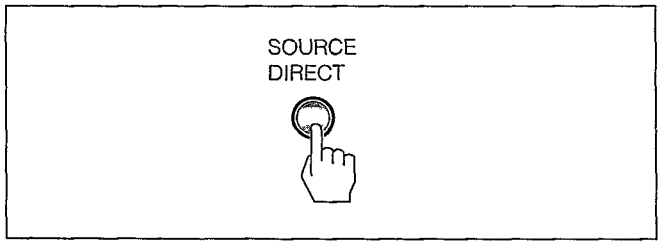
To adjust the tone quality
Adjust BASS or TREBLE for the optimum sound.



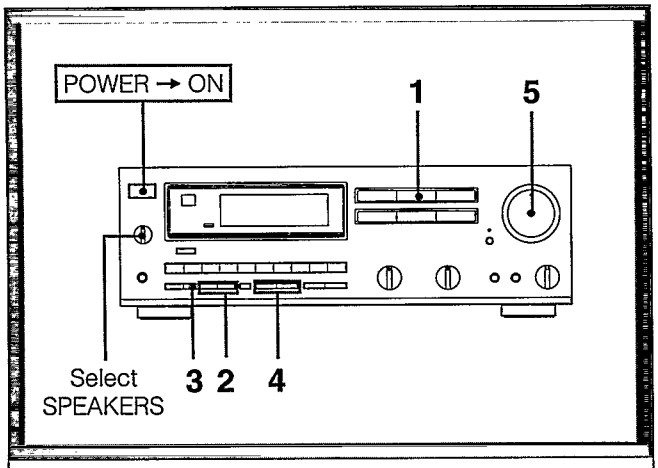
To reinforce the bass frequency response
Press LOUDNESS.
The lower the speaker output level is, the more bass frequency sound is emphasized.



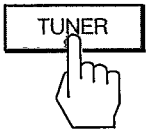
To bypass the tone control circuit
Press SOURCE DIRECT.
BASS and TREBLE tone controls, BALANCE control and LOUDNESS are bypassed.



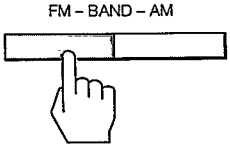
Tuning in an FM Station Automatically — Automatic Tuning



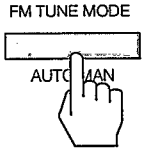
1 **Press TUNER.**



2 **Select FM.**

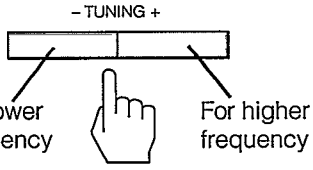


3 **Press FM TUNE MODE.**



AUTO indicator appears.

4 **Press TUNING – or +.**



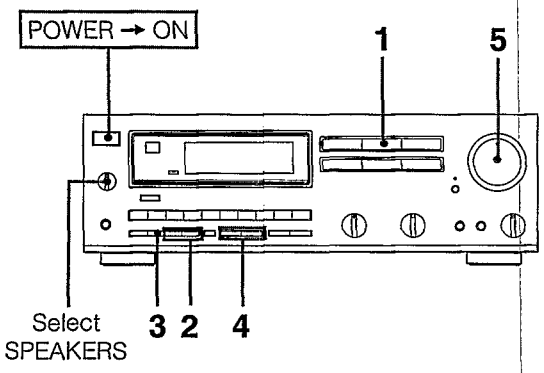
5 **Adjust the volume.**

When sweeping does not stop at the desired station
The signal strength is weak.
To stop sweeping, press FM TUNE MODE again. AUTO indicator disappears and automatic tuning stops.
Then tune in the station as described in "Manual Tuning".

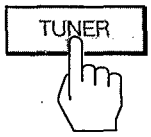
When an FM stereo program is noisy or hard to receive
Press FM MODE. The MONO indicator appears (the sound is heard in monaural, but the reception will be improved).
To return to the stereo mode, press the button again or tune in another station.

Tuning in an FM/AM Station Manually – Manual Tuning

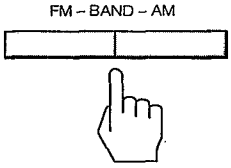
When you do not know the frequency of an FM/AM station, proceed as follows:



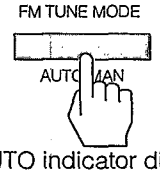
1 **Press TUNER.**



2 **Select FM or AM.**

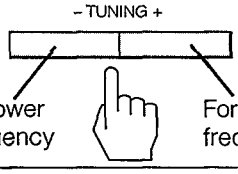


3 **Press FM TUNE MODE.**



AUTO indicator disappears.

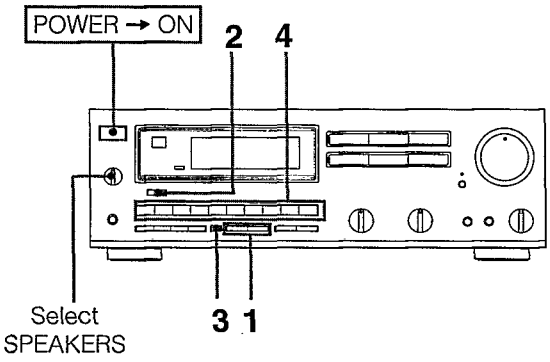
4 **Press TUNING – or +.**



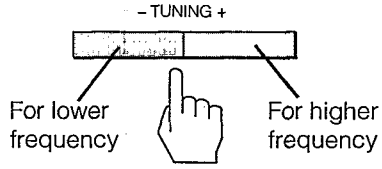
5 **Adjust the volume.**

Memorizing a Station

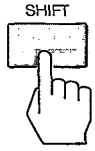
A total of 30 FM/AM stations can be memorized in any desired sequence.



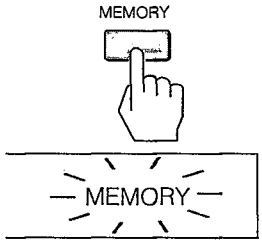
1 **Tune in the desired station.**



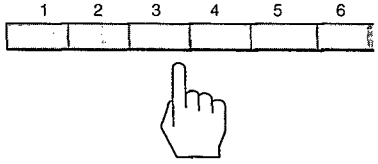
2 **Select the memory page (A, B, and C).**



3 **Press MEMORY so that the MEMORY indicator lights up.**

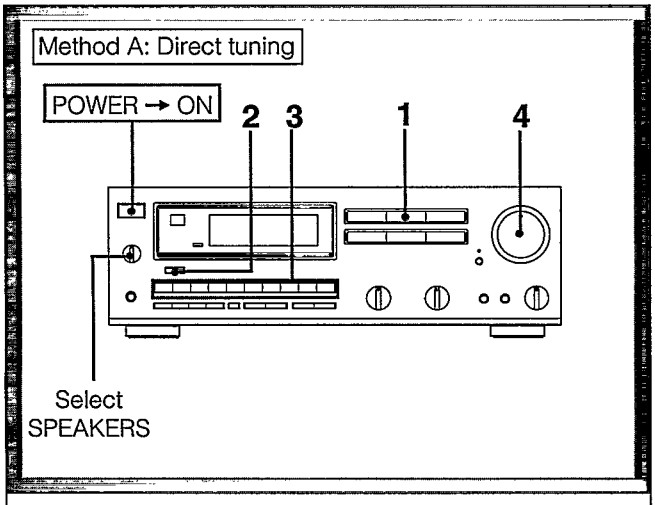


4 **While the MEMORY indicator is on, press the desired number.**

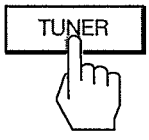


Receiving FM/AM Broadcasts

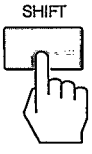
Tuning in a Preset Station



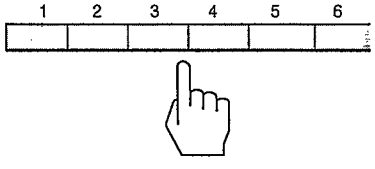
1 **Press TUNER.**



2 **Select the page.**



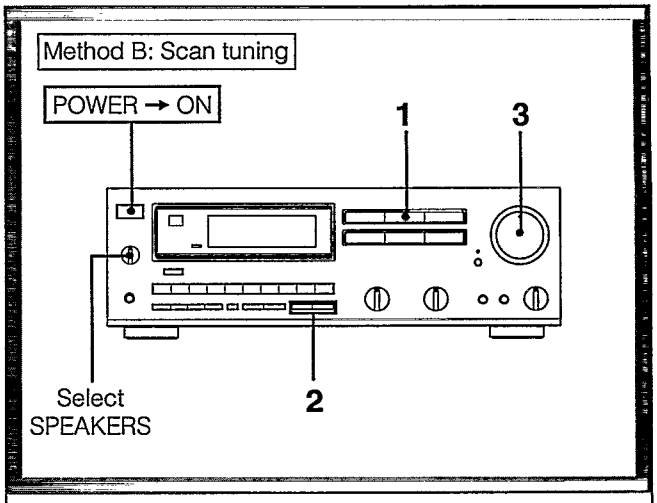
3 **Select the number.**



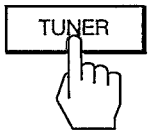
4 **Adjust the volume.**

Replacing a preset station
Preset another station on the number of the station to be replaced. The previously preset station will be erased.

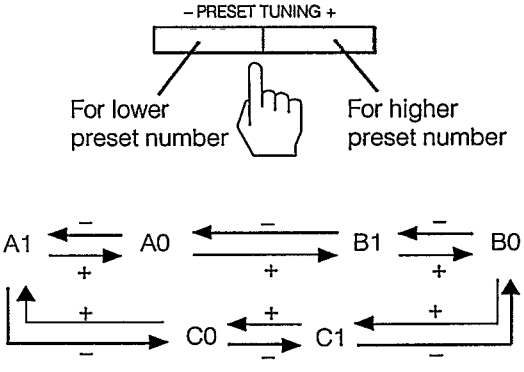
IMPORTANT
The memorized station is maintained for approximately one month even if the power cord is disconnected from the AC power source. If they are erased, store the stations again.



1 **Press TUNER.**

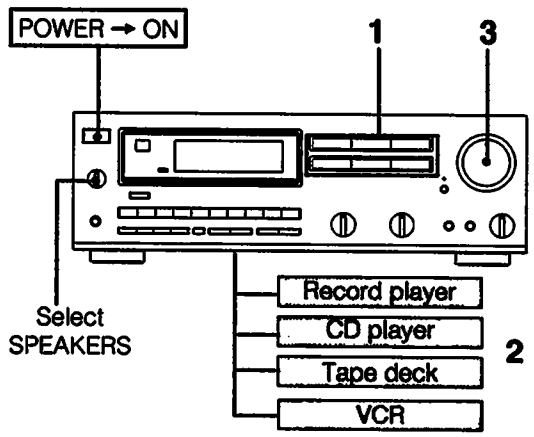


2 **Press PRESET TUNING – or +.**



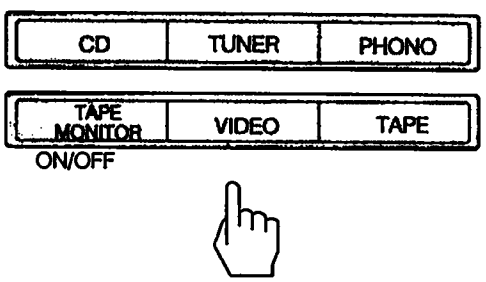
3 **Adjust the volume.**

Listening to Program Source other than Broadcasts



1 **Select the program source.**

	FUNCITON
Phono record	PHONO
Compact disc	CD
Video programs	VIDEO
Taped programs	TAPE or TAPE MONITOR



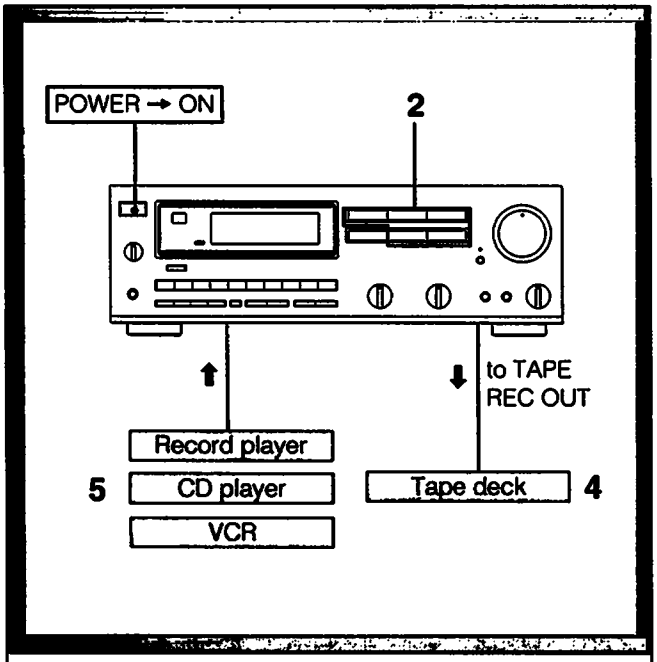
2 **Start the program.**

3 **Adjust the volume.**

Note on TAPE MONITOR button
The TAPE MONITOR button has priority over other function selectors. Be sure to release the TAPE MONITOR button except when listening to taped program. Otherwise, the program source selected with the function selector cannot be heard.

Recording on an Audio Tape

Recording



1 **Turn on the receiver and the equipment to be used.**

2 **Select the desired program source.**

3 **For an FM/AM broadcast, tune in the desired station.**

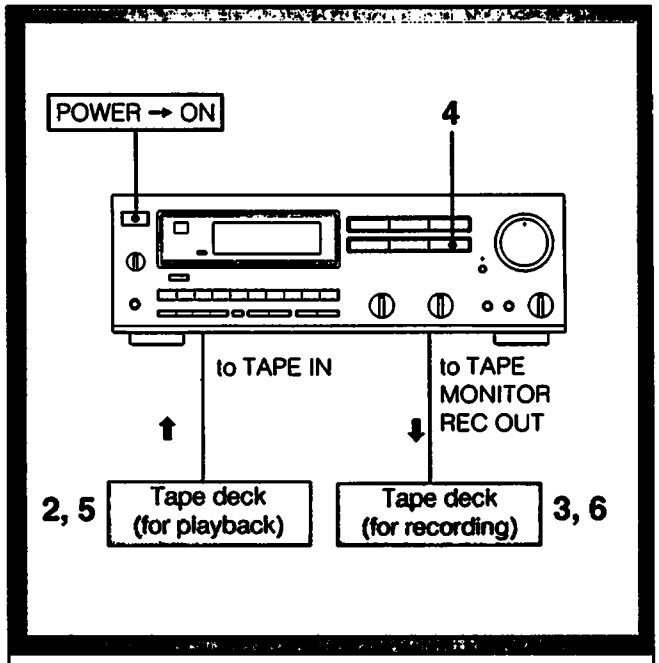
4 **Set the tape deck in the recording mode.**

5 **Start the desired program source.**

To monitor recorded sound while recording
If a tape recorder with three-head system is connected to TAPE MONITOR jacks, recorded sound can be monitored. Select recording tape recorder using the TAPE MONITOR button. The recorded sound is immediately fed back to the amplifier and output to the speakers.

Note on recording
The setting of the volume, BASS, TREBLE, and BALANCE controls do not have any effect on recording.

Tape Dubbing



1 **Turn on the receiver and the equipment to be used.**

2 **Insert the recorded tape into deck connected to the TAPE jacks.**

3 **Insert a blank tape into the tape deck connected to the TAPE MONITOR jacks and adjust the recording level.**

4 **Press TAPE.**

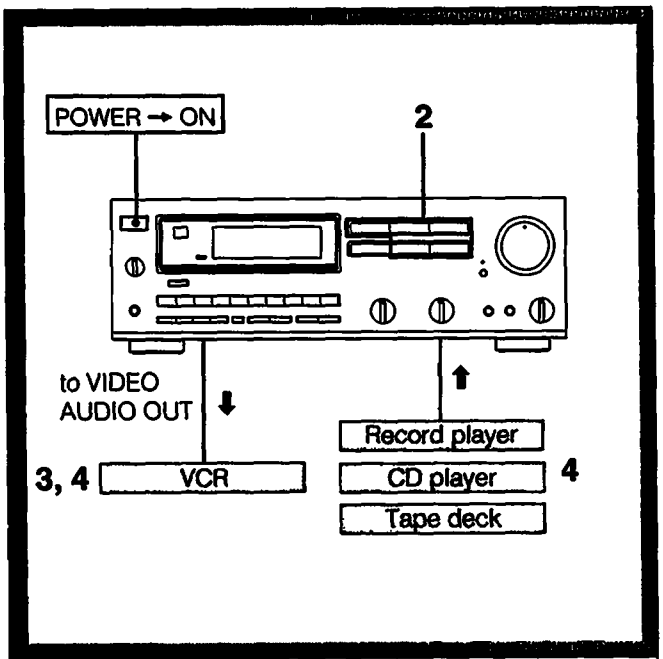
5 **Start the playback of the tape deck for playback.**

6 **Set the tape deck for recording in the recording mode.**

Recording on a VCR

Recording Audio Programs

To record an audio program source on a video tape, proceed as follows:



1 **Turn on the receiver and the equipment to be used.**

2 **Select the desired program source.**

3 **Insert a video tape into the VCR and adjust the recording level.**

4 **Start the program source and set the VCR in the recording mode.**

Troubleshooting

Before proceeding through the check list below, examine the connections and the procedures outlined the manual.
Should any problem persist after you have checked the following items, consult your nearest Sony dealer.

Problem	Cause	Remedy
Sound is not heard.	The TAPE MONITOR jacks are not in use and the TAPE MONITOR button is pressed to ON.	Press the TAPE MONITOR button to set to OFF.
	The speaker or program source equipment is not connected correctly.	Connect the equipment correctly. (See pages 6 to 8.)
	The correct speakers are not selected with SPEAKERS selector.	Set the SPEAKERS selector correctly.
	The correct FUNCTION selector is not pressed.	Press the correct FUNCTION selector.
	The volume is set to minimum.	Increase the volume.
One channel does not transmit audio, or the volume from the left and right speakers is unbalanced.	The BALANCE control is not set appropriately.	Adjust the BALANCE control.
	The speaker or program source is not connected correctly.	Connect the equipment correctly. (See pages 6 to 8.)
There is an abrupt loss of sound from one or both of the speakers, and the PROTECTOR indicator flickers in the display window.	A short-circuit problem activates the protective circuit.	Turn off the receiver, eliminate the short-circuit problem and turn on the power again. If there is no short-circuit, consult your nearest Sony dealer.
	The SPEAKER IMPEDANCE SELECTOR on the rear is not set correctly.	Set the SPEAKER IMPEDANCE SELECTOR correctly.
Sound transmitted from the speakers is reversed.	The speakers are not connected correctly.	Connect the speaker with the correct ⊕ ⊖ polarities. (See page 8.)
Severe hum or noise is heard.	The connecting cords are not of shielded type.	Use shielded type cords.
	A transformer, motor, TV or fluorescent light affects the connecting cord.	Place the connecting cords in a location away from a transformer or motor, and at least 3 meters (10 feet) from a TV set or a fluorescent light.
	The audio components are too close to a TV set.	If both are used at the same time, separate the TV from the audio components.
	The receiver is not grounded.	Connect the ground wire to the antenna ground terminal.
	The connections are loose.	Make secure connections.
	The plugs and jacks are dirty.	Wipe the plugs and jacks with a cloth

Problem	Cause	Remedy
STEREO indicator flickers or does not appear when receiving stereo programs.	A very weak FM station or a noisy FM program is received.	Adjust the antenna or connect an external FM antenna.
		Press the FM MODE button to disengage the stereo mode.
The desired station cannot be found during Automatic Tuning.	The signal strength is too weak for Automatic Tuning.	Adjust the antenna.
		Tune in the station with the Manual Tuning system. (See page 13.)
Preset stations cannot be tuned in.	The stations have not been memorized.	Memorize the stations. (See page 13.)
AM station cannot be tuned in.	The AM tuning interval is set incorrectly.	Change the tuning interval according to the AM frequency allocation system of your country. (See page 5.)
The remote commander does not operate.	The batteries are exhausted.	Replace the batteries with new ones.
	There is any object between the unit and the commander head.	Remove the object.

Specifications

Audio Power Specifications

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

With 8-ohm load, both channels driven, from 20 - 20,000 Hz, rated 60 watts per channel minimum RMS power, with no more than 0.08% total harmonic distortion from 250 milliwatts to rated output.

With 4-ohm load, both channels driven, from 20 - 20,000 Hz, rated 60 watts per channel minimum RMS power, with no more than 0.08% total harmonic distortion from 250 milliwatts to rated output.

Other Specifications

Amplifier section

Dynamic power output
- 75 watts + 75 watts (8 ohms, at 1 kHz IHF)
- 100 watts + 100 watts (4 ohms, at 1 kHz IHF)
- 105 watts + 105 watts (2 ohms, at 1 kHz IHF)

Harmonic distortion
- Less than 0.08% at rated output

Frequency response
- PHONO: RIAA equalization curve ±0.5 dB
- CD, TAPE, VIDEO, TAPE MONITOR: 5 Hz -50 kHz $^{+0}_{-1}$ dB

Residual noise: Less than 70 µV (8 ohms, network A)

Damping factor: 50 (8 ohms, 1 kHz)

Inputs

	Sensitivity	Impedance	S/N (weighting network, input level)
PHONO	2.5 mV	50 kilohms	87 dB 79 dB* (A, 2.5 mV)
CD, VIDEO TAPE, TAPE MONITOR	150 mV	50 kilohms	105 dB 86 dB* (A, 150 mV)

* '78 IHF

Outputs
- VIDEO AUDIO OUT
- REC OUT
  - Voltage 150 mV
  - Impedance 10 kiloohms
- SPEAKER A, B
  - Accepts speakers of 4 – 16 ohms.
- HEADPHONES
  - Accepts low and high impedance headphones.

Tone controls: BASS: ±8 dB at 100 Hz; TREBLE: ±8 dB at 10 kHz

Muting: –20 dB

FM/AM tuner section

	FM tuner section	AM tuner section
Tuning	87.5 — 108 MHz	530 — 1,710 kHz (with the AM tuning interval set at 10 kHz) 531 — 1,710 kHz (with the AM tuning interval set at 9 kHz)
Antenna	300 ohms,balanced 75 ohms, unbalanced	External antenna terminal, loop antenna
Intermediate frequency	10.7 MHz	450 kHz
Sensitivity at 50 dB quieting	18.3 dBf, 2.2 µV (mono) 38.3 dBf, 22.5 µV (stereo)	—
Usable sensitivity	11.2 dBf, 2 µV (IHF)	Loop antenna: 50 dB/m (at 1,000 kHz) External antenna: 100µV (at 1,000 kHz)
Signal-to-noise ratio	82 dB (mono) 76 dB (stereo)	54 dB (at 50 mV/m)
Harmonic distortion	0.1% (mono), 0.2% (stereo) at 1 kHz	0.3% (at 50 mV/m, 400 Hz)
Selectivity	60 dB at 400 kHz	40 dB at 10 kHz 35 dB at 9 kHz
Separation	45 dB at 1 kHz	
Frequency response	30 Hz — 15 kHz $^{+0.5}_{-1.5}$ dB	
IM distortion	0.1% (mono) 0.2% (stereo)	
Capture ratio	1.2 dB	
AM suppression ratio	54 dB	
Image response ratio	80 dB	
IF response ratio	90 dB	
Spurious response ratio	100 dB	
RF Intermodulation	65 dB (800 kHz)	
Auto tuning threshold	30 dBf	

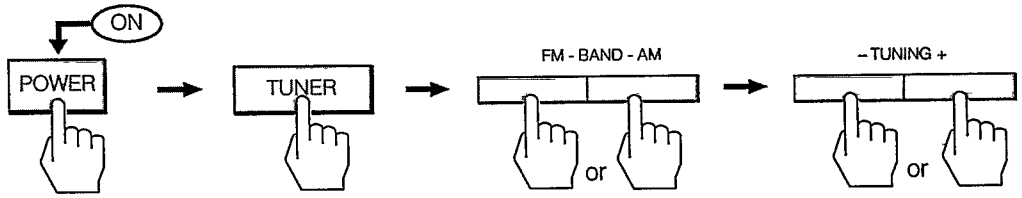
General

System	Tuner section: PLL quartz-locked digital synthesizer system Preamplifier section: low-noise NF type equalizer amp Power amplifier section: pure-complementary SEPP
Power requirements	120 V AC, 60 Hz
Power consumption	USA model: 130 watts Canadian model: 150 W
AC outlets	Two switched USA model: 100 W Canadian model: 120 W/1A
Dimensions	Approx. 430 x 135 x 375 mm (w/h/d) (17 x 5 $^3/_8$ x 14 $^3/_4$ inches) including projecting parts and controls
Weight	Approx. 8.1 kg (17 lb 14 oz) net Approx. 9.5 kg (21 lb) in shipping carton
Accessories supplied	FM wire antenna (1) AM loop antenna (1) Remote Commander (1) RM-S103 Sony batteries SUM-3(NS) (for the remote commander) (2)

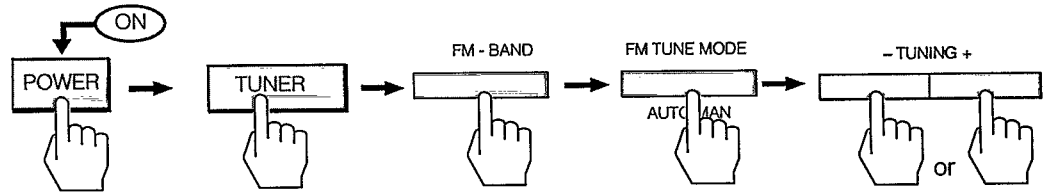
Design and specifications are subject to change without notice.

Quick Reference

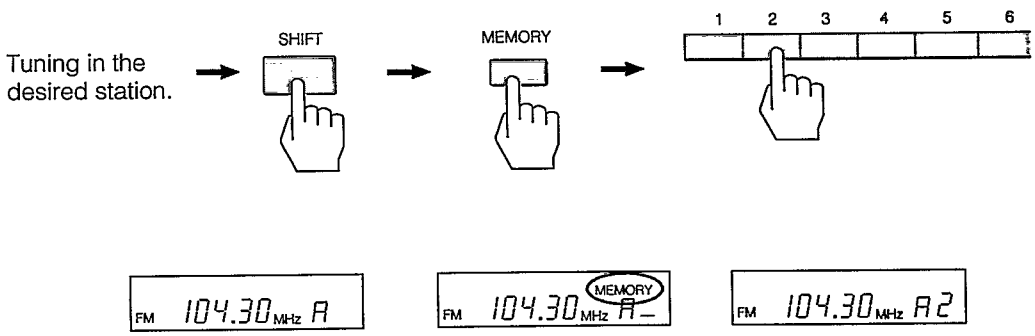
Tuning in an FM/AM station manually



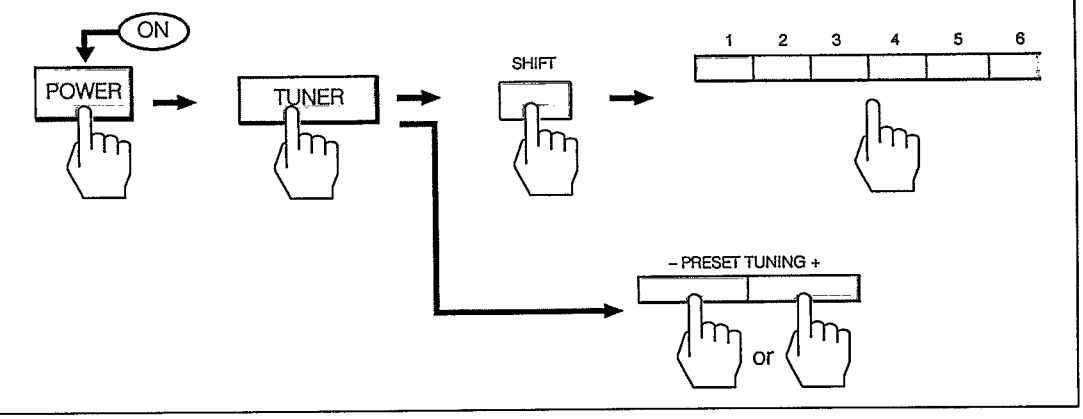
Tuning in an FM station automatically



Memorizing a station



Tuning in a preset station



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